CHAPTER 2

PRELIMINARY DESIGN CONSIDERATIONS

2-1. Existing conditions. As an important initial step in the design process, existing maps, drawings, surveys, boring logs, and other data containing pertinent information on existing conditions in the area being sewered should be obtained. Possible sources of such information are an installation or facility engineer and the Army using service.

2-2. Field investigations. If maps are not available, or do not provide satisfactory information or sufficient detail of the site, field surveys must be performed. Depending on the magnitude and complexity of the project, subsurface exploration with soil borings may be required.

2-3. Guidelines for sewer system layout. The development of final sewer plans must await the final site plan, the completion of field surveys, and to some extent, the establishment of finished grades. However, the development of economical site plans often requires concurrent preliminary planning of the sewer system. The location of building and lateral sewers will depend not only upon topography, but also upon the type and layout of the buildings to be served. Main, trunk, and interceptor sewers will follow the most feasible route to the point of discharge. All sewers will be located outside of roadways as much as practicable, so that the number of roadway crossings will be reduced to a minimum. A sewer from one building will not be constructed under another building. The following general criteria will be used where possible to provide a layout which is practical, economical, and meets hydraulic requirements.

a. Follow slopes of natural topography for gravity sewers.

b. Check existing maps or field surveys along prospective sewer routes to assure that adequate slopes are available.

c. Avoid routing sewers through heavily wooded areas and areas which require extensive restoration after construction.

d. Check subsurface investigations for ground water levels and types of subsoil encountered. If possible, avoid areas of high ground water and the placement of sewers below the ground water table.

e. Locate manholes at changes in direction, size or slope of gravity sewers.

f. Sewer sections between manholes should be straight. The use of curved sewer alinement is not permitted.

g. Manholes should be located at intersections of streets when possible.

h. Avoid placing manholes where the tops will be submerged or subject to surface water inflow.

2-4. Protecton of water supplies. There must be no physical connection between a potable water line and the sewer system. Sewer design will meet the following criteria.

a. Sewers will be located no closer than 50 feet horizontally to water wells or earthen reservoirs to be used for potable water supply.

b. Sewers will be located no closer than 10 feet horizontally to potable water lines; where the bottom of the water pipe will be at least 12 inches above the top of the sewer, the horizontal spacing may be a minimum of 6 feet.

c. Sewers crossing above potable water lines must be constructed of acceptable pressure pipe or fully encased in concrete for a distance of 10 feet on each side of the crossing. The thickness of the concrete encasement will be a minimum of 4 inches at pipe joints.